Grades: 9–12
Time: 1 Class Period

Description:

This activity is designed to challenge students, through interactive game playing, to consider facts concerning careers, technology, and gender roles.

Objectives:

Students will be able to:
*   Learn about the career opportunities in technology.
*   Define and recognize that women are under-represented and underpaid in technology field.
*   Work effectively and fairly within a group.
*   Develop gender equitable attitudes regarding technology.
*   Apply knowledge of the subject to personal actions and interactions.

Materials:

1. A handout and/or overhead transparency stating the rules of the game.
2. Title cards that name such category, each on different colored paper (originals provided).
3. Question cards for each category color coded to title cards (needs to be made). A question and answer sheet is provided.
4. Dice, paper, and pencil for each group.
5. Instructor answer sheet.

Procedure:

Note: See rule sheet for Techno-Rama — Attached

1. **Have the room prepared.** Title cards for each category should be prominently displayed on classroom walls. Desks should be moved together so that four students may work comfortably together and see the displayed cards.

2. **Form teams**. Four students on each team is ideal. Dice, paper, and pencils for each team

3. **Hand out Rule Sheet to each team and/or project "rules" transparency on an overhead projector** to use on overhead projector. Read the rules out loud, and answer all the students' questions.

4. **Play the game.** (See rules sheet.)

5. **After each round of questions, a discussion period should take place.** Ask students leading questions to prompt discourse, such as:

    • Were you surprised by the correct answer?
    • How did you know the right answer?
    • Is that true in our school?
    • Do you feel the answer is accurate?
    • How do you women (or men) feel about that fact?
    • How can we change / improve this situation?

6. **If time allows, follow up the game with student writing.** Students may write about their technological history, their technological aspirations, technological inequities they have experienced, and solutions for improvement.

Evaluation:

Assess students' willingness to participate in this group activity and their effort exerted during the game and subsequent discussions.

Rule Sheet

Object of the Game:

To answer questions correctly so that your team can win as many points as possible before the time is up.

How to Play:

Think about how your team will share the tasks required in the game as you hear the following rules. You will need different people for the roles of: **Spokesperson**, **Reader**, **Roller of the Dice**, and **Scorekeeper**.

1. The **Roller of the Dice** for each team will roll to see who goes first. The highest roll goes first, the team with the second highest roll goes second, etc.

2. The **Spokesperson** for the team going first will select one of the three categories: (1) Gender and Computers; (2) www.Technotrivia.com (The Internet); and (3) Telecommunications Careers.

3. The **Reader** for each team will then select a card from that category and read the card out loud to her/his teammates. (Teams will be working on a different card, but from the same category, at the same time.) Teams will have about 2 minutes to talk over the question and decide on an answer.

4. When the teams are ready, the **Reader** from each team will read her/his card out loud and the **Spokesperson** will give the answer.

5. If the answer is correct, the **Roller of the Dice** will roll to see what your team wins. Rolling a 1 wins your team 100 points; a 2 wins 200; and so on. If the answer is incorrect, your team wins nothing in that round. The **Scorekeeper** will keep track of your team's score.

6. This is a good time for student questions and discussion. If the team answered incorrectly, ask others for the correct response.

7. When the **Spokesperson** for each team has given her/his answers, the round is over and a new round begins. The **Spokesperson** for the next team will select another category, and the game will continue.

8. The game is over when time runs out. At that point, the **Scorekeeper** for each team will count up and report her/his team's total winnings. The team with the most points wins.

Answer Sheet
Gender and Computers

1. During elementary school, boys and girls both **use computers** equally.

   True   False

2. What gender spends more time on the computers during middle school and high school?

   Males   Females

   Males have more computer use in after-school computer clubs, during free-time computer use, and in computer elected courses.

3. What percentage of computer science graduates are women at the Bachelor's level?

   49%   **29%**

   The total number of female computer science graduates is actually decreasing. Over the last ten years from 1985-95, the percentage of decline in women's pursuit of computer science degrees was 20%.

4. Females tend to prefer computer games rather than video games.

   True   False

5. What percentage of the characters in computer games are male?

   74%   54%   44%

Gender and Computers (continued)

6. In computer ads featured on TV, newspapers, and magazines, male and female representation was:

    75% female and 25% male

    50% female and 50% male

    25% female and 75% male

7. Students from both low and high income schools have equal access to computers.

    True   **False**

    At all levels (K-12) students from low income schools have less access to computers.

8. Percentage of data entry operators who are women.

    51%   71%   **91%**

9. Percentage of Internet users who are men is 60-90%.

    True   False

10. Females prefer computer games / activities that are intellectually challenging and allow one time to think about answers rather than having to respond immediately.

    True   False

    Girls also prefer using computers to communicate and collaborate on projects.

Answer Sheet
WWW.TECHNOTRIVIA.COM

In this round, your team has to figure out the correct answer to the question or statement on the card.

1.   www gurl.com   www gnofn.org   alalucha@javanet.com   are URLs.

What is a URL?

ANSWER: URL stands for Uniform Resource Locator or Internet address.

2.   The Net, cyberspace, the information superhighway, and the Web are all nicknames for global network of computers. What is it officially called?

ANSWER: the Internet

3.   **E-mail** is a nickname for

ANSWER: Electronic mail sent and received via the computer network.

4.   **Snail mail** is a nickname for

ANSWER: Since e-mail can be sent and received in seconds, mail sent in hard copy through the postal system, which can take a minimum of 2 days, is considered slow ... "snail mail."

5.   Since emotions are so hard to convey in the written word, **emoticons** are the symbols people use when they are communicating on the Internet. What is meant by this emoticon :-) ?

ANSWER: Happy or smile—it is meant to be a sideways smiley face.

WWW.TECHNOTRIVIA.COM(continued)

6.   Why do people choose to make up a nickname when they are "chatting" on the Internet?

    ANSWER: For safety purposes, it is best to conceal any real information about yourself.

7.   What piece of hardware converts digital signals from your computer into analog signals that are sent over telephone lines, so you can "talk" with other computers?

    ANSWER: a modem

8.   The Internet was begun as a government research project and developed by experts who lived in cities across the U.S. and the world. One of the first uses of the Internet was to enable these experts to communicate easily with one another. What familiar means of communication did these experts use?

    ANSWER: e-mail

9.   Name three pieces of **hardware** you would need to use the Internet?

    ANSWER: Any of the following: computer, monitor, mouse, keyboard, modem, and a phone line or cable line.

10.   What is **software**?

    ANSWER: The name for a computer program, to do and how to do it. Programs tell your computer what to do and how to do it.

Question and Answer Sheet
Technology Careers/Telecommunications
(less than a 4-year degree)

1. My work takes me into homes and offices, up telephone poles, down into manholes and trenches, anywhere the telephone company needs their cables installed, joined together (spliced), or repaired. I like being outside. When I'm sent out on a job, I read drawings and work prints to determine what needs to be done and in what order. Bringing along the right equipment often involves lugging heavy ladders, cable, and network components, so physical strength and fitness is important. I couldn't have been hired for this job if I didn't have a good driving record and pass a test at the end of five weeks of intense physical and technical training. I started right after high school earning $300/ week or $16,000/ year and am working my way up.

    What career am I? **Splice/Service Technician**
    (Related Occupations: Installation or Repair Technician)

2. If you're having difficulty logging onto the Internet, call me. With my training in electronics and my knowledge of computers, modems, and Internet protocols, I can help you pinpoint and solve the problem. I can help you set up an account and give technical advice on using it. I started this job right after I finished my Associate's degree and I'm earning almost $30,000/ year.

    What career am I? **Universal Agent**
    (Related Occupations: Computer Technician)

3. Like Dear Abby, it's my job to listen, understand people's problems, and offer solutions. People who have purchased my company's telephone and data systems for their businesses call me if the equipment isn't working the way it should. I try to pinpoint what the problem is and then explain to the caller how to correct it. When problems are really complex, I turn to my teammates who might have some experience and we work on it together. If it's really tough, I might take it to an engineer who designed the system. I got started in this field with what I had taught myself about modems and computer programming. Others I know have Associate's or Bachelor's degrees. I had to take a qualifying test to show that I had basic skills in telephone, electronics, data communications, networking, and microcomputers and that I could analyze and solve problems creatively.

    What career am I? **Systems Support Specialist**
    (Related Occupations: Technical Service Associates, Systems Support Technician)

Technology Careers/Telecommunications (continued)
(less than a 4-year degree)

4.   The telephones and voice mail systems that businesses, governments, and schools rely on to do business are made by companies like mine. I install the phone systems, computer components, and the software that runs them. If their system isn't working properly, I troubleshoot and get them back on track. I like the fact that I am always meeting new people and helping them with an important part of their business. I have an Associate's degree in electronics and make about $30,000+.

What career am I? **Field Service Engineer**
(Related Occupations: Customer Systems Engineer, Customer Engineer)

5.   Schools, businesses, homes, and libraries all need to have cables installed if they want to have computers networked, cable TV, or phone lines. I install the wiring, join or splice it together, and install the connections and plugs that let you use the system. I learned about electronics in high school and have a good understanding of circuitry and what different types of cables can do. When I got this job, I trained with an experienced technician for a couple of weeks. Because I'm reliable, work quickly, and have a clean driving record, I have the freedom and responsibility of working on my own most days. Some day I'd like to own my own company.

What career am I? **Cabling Technician**
(Related Occupations: Telecom Construction Technician, Broadband Technician Field Technician/Customer Service)

6.   Each time you make a phone call, the sound of your voice is transformed into electrical signals that are routed through a maze of wires and switches that direct them to the phone of the person you are talking to. My job is to install and repair the equipment at phone company buildings that make this switching possible. I read and analyze mechanical and electrical drawings, install switches and electrical wiring, and use testing equipment to make sure things are working properly. I had some background in electronics before I took this job. After I was hired, I went through five weeks of intense physical and technical training in maintaining electronic switching devices. I am taking advantage of the training and certification opportunities the phone company offers to work my way up.

What career am I? **Equipment Installation Technician**
(Related Occupations: Installation Technician, Repair Technician)

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Technology Careers/Telecommunications (continued)
(less than a 4-year degree)

7. Each time you make a phone call, the sound of your voice is transformed into electric signals that are routed through a maze of wires and switches that direct them to the phone of the person you are talking to. My job with the phone company is to make sure the equipment that makes this switching possible has enough power and is working properly. I read and analyze mechanical and electrical drawings, install switches and electrical wiring, and use testing equipment to make sure things are working properly. I started with the phone company several years ago in an entry-level technician job and took advantage of several training opportunities to become qualified for this job.

   What career am I? **Central Office Technician**
   (Related Occupations: Network Technician)

8. If you are having difficulty logging onto the Internet, call me. With my training in electronics and my knowledge of computers, modems, and protocols, I can help you pinpoint and solve the problem. I can help you set up an account and give you technical advice on how to use it. I started this job right after I finished my Associate's degree and I'm earning about $10-12/hour or $21,000-25,000/year to start.

   What career am I? **Customer Care Consultant**
   (Related Occupations: Computer Technician, Customer Support Technician)

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TELECOMMUNICATIONS

GENDER AND COMPUTERS